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EXAMINER
TATE, CHRISTOPHER ROBIN

ART UNIT	PAPER NUMBER
1655	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	09/856,717	ASANO ET AL.	
	Examiner	Art Unit	
	Christopher R. Tate	1655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 September 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24-30,32 and 34-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24-30,32,34 and 36-38* is/are rejected.

7)☒ Claim(s) *35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The amendment and terminal disclaimer filed 14 September 2007 are acknowledged and have been entered. Claims 24-30, 32, and 34-38 have been examined on the merits.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

Claims 24, 25, and 36-38 stand rejected under 35 U.S.C. 102(b) as being anticipated by Sugano et al. (US 4,461,760) for the reasons set forth in the previous Office action which are restated below.

A method of treating a tumor via administering to a subject in need thereof an extract of *Lentinus edodes* mycelium (LEM), whereby the extract is prepared by crushing and delignifying a solid medium containing bagasse, rice bran, and LEM in the presence of water and one or more enzymes selected from cellulase, protease, and glucosidase to prepare a suspension, and raising the temperature of the suspension to inactivate the enzymes is claimed, whereby the LEM extract enhances γδT cell activity is claimed, as well as the general concept of activating γδT *in vivo* via administering such an LEM extract to an animal.

Sugano et al. teach an anticancer/antitumor composition comprising an LEM extract prepared via the same or essentially the same steps as those instantly claimed which was orally administered via injection to rats (in solution form, whereby LEM powder was dissolved in 0.9% salt water - please note that such a solution would be suitable for oral administration as instantly claimed) having chemically induced tumors, whereby the LEM increased the survival rate of the rats as well as reduced their tumor growth rate (see entire document including, e.g., col 2, line

48 - col 3, line 15, per se; col 4, line 44 - col 5, line 68; Figures 2-3, and Tables 4-5: with respect to the preparation and *in vivo* use of LEM, per se). Please note that although not expressly taught, other recited claim limitations (e.g., the instantly claimed underlying functional effect - enhancing γδT cell activity, and/or that the extract comprises various naturally-occurring ingredients therein) would be inherent to the LEM extract taught by Sugano et al.

Therefore, the reference is deemed to anticipate the instant claims above.

Applicants' arguments concerning the above rejection have been carefully considered but are not deemed to be persuasive of error in the rejection. Applicants argue that it was demonstrated within their 03 January 2003 response that a product made using the recited method is different from the product of Sugano ('760). However, in forming the previous Office action, the Examiner had again reviewed the teachings of Sugano ('760) and then further considered the arguments presented within Applicants' 03 January 2003 response over the reference product. The Examiner determined at the time of the previous Office action that the arguments presented within Applicants' 03 January 2003 response were not persuasive over the cited reference and thus made the USC 102(b) rejection over Sugano ('760) for the reasons set forth in the previous Office action. In response to Applicants arguments presented in their 14 September 2007 response that a product made using the recited method is different from the product of Sugano ('760)- i.e., the process used to make the extract employed within the method recited by instant claim 24 has three features: (i) the use of solid bran medium based bagasse and defatted rice bran; (ii) a step of crushing and delignifying a solid medium containing Lentinus edodes mycelia in the presence of water and one or more enzymes selected from the group

consisting of cellulase, protease, glucosidase, to prepare a suspension; and (iii) a step of raising the temperature to inactivate the enzymes; whereas the method of the present invention results in a different product compared to Sugano ('760) including, for example, the product resulting from the extraction and preparation method of claim 24 has glucose as a primary component with a glucose content of approximately 40% (as disclosed in Example I of the instant specification) - vs. the extract of Sugano ('760) which was found to contain sugar and protein primarily consisting of xylose. However, these arguments regarding the amount of glucose and/or xylose within such an administered extract to which Applicants rely upon are not commensurate to the instant claim language set forth in claims 24, 25, and 36-38 - i.e., the instant claims are not limited to the administering the recited extract whereby the extract is defined by the amount of glucose and/or xylose therein. Thus, for the reasons fully set forth above, the cited reference is deemed to anticipate the invention defined by instant claims 24, 25, and 36-38.

It should be noted however that treating a tumor via administering such an extract, whereby the extract comprises the particular percentage amounts of various ingredients therein as recited in instant claim 35 is deemed to adequately distinguished the claimed method over the prior art.

Claim Rejections - 35 USC § 103

Claims 24-27, 30, 32, 34, and 36-38 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nagaoka (US 6,090,615) and Nagaoka (US 2004/0038330 - which has an effective filing date of June 9, 1994), in view of Iizuka (US 4,629,627) for the reasons set forth in the previous Office action.

The US '615 reference teaches a *Lentinus edodes* (also known as shiitake mushroom) mycelium (hyphae) extract which is prepared via the same (or essentially the same) steps as instantly claimed, as well as pharmaceutical, drink, oral (food) formulations thereof, and a method of treating tumors therewith (see, e.g., col 1, lines 30-44; col 2, lines 25-63; col 3, lines 6-68; and Example 1, Comparative Examples 1 and 2, Example 4, Comparative Examples 3-4). The US '615 reference also expressly teaches that the extract composition shows excellent antitumor effects and has high levels of bioactive immune imparting cytokinin-like substances (especially including extract preparations prepared by either of the first two methods disclosed within US '615 - which do not require, or do not necessarily require, the presence of *B*-1,3-glucanase therein); and further that not only can the enzyme *B*-1-3-glucanase be used but also enzymes derived from the mycelium in preparing an extract with anti-tumor activity (see, e.g., Abstract; col 4, lines 41-45; col 8, lines 44-51; col 10, lines 24-47).

In addition, the US '330 reference teaches a *Lentinus edodes* mycelium extract, prepared via the same (or essentially the same) steps as instantly claimed, which is useful against viral hepatitis B, HIV, and liver cancer (see, e.g., paragraphs [0013] and [0016], and claim 5) and can be administered orally or by injection (see, e.g., paragraph [0029]). Please note that a subject with liver cancer (as disclosed by the US '330 reference) reasonably reads upon a subject in need thereof with respect to treating a tumor in a subject in need thereof (i.e., whether the liver cancer is caused by a viral infection or not it is still liver cancer which is readily understood in the medical art as reading upon a subject having a tumor or tumorous growth within the liver).

Neither of the above references expressly teaches treating viral infections other than hepatitis B and HIV with such a *Lentinus edodes* mycelium extract.

Iizuka beneficially teaches producing an antiviral and anti-tumor (including against liver cancer and other tumors within rats and mice) *Lentinus edodes* mycelium extract having cytokinin activity which is initially prepared via the same (or essentially the same) steps as instantly claimed, prior to additional isolation/purification steps. Iizuka further discloses that their cytokinin-containing extract preparation is useful against various types of viruses including against herpes virus infections (see entire document including col 3, line 1 - col 5, line 51).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to prepare a therapeutic anti-tumor/anti-cancer *Lentinus edodes* (shiitake) mycelium extract via the instantly claimed steps, including formulating such therapeutic extracts into conventional pharmaceutical, drink, and/or oral (e.g., food) preparations, as well as to treat liver cancer and/or other tumors therewith, based upon the beneficial teachings provided by the cited Nagaoka references with respect to such anti-tumor/anti-cancer activity. It would also have been obvious to one of ordinary skill in the art to treat other viral infections (as well as tumors) with a *Lentinus edodes* mycelium extract disclosed by the Nagaoka references, especially since the US '615 reference expressly teaches that such an LEM extract contains high levels of cytokinin-like substances and Iizuka beneficially discloses that cytokinin substances within *Lentinus edodes* mycelium extract preparations are bioactive substances therein which provide effective therapeutic activity against viral infections (as well as tumors). Please note, if not expressly taught, the other claim limitations (e.g., that the extract has a particular functional cell activity and/or that it comprises approximate ranges of various ingredients therein) would be intrinsic to the *Lentinus edodes* mycelium extracts reasonably taught and/or suggested by the cited references. The result-effective adjustment in conventional working conditions/parameters

(e.g., providing such an extract within one or more conventional pharmaceutical formulations such as those instantly claimed) is deemed merely a matter of judicious selection and routine optimization which is well within the purview of the skilled artisan having the cited references as a guide. Please note that although not expressly taught, other recited claim limitations (e.g., the instantly claimed underlying functional effect - enhancing γδT cell activity, and/or that the extract comprises various naturally-occurring ingredients therein) would be intrinsic to the *Lentinus edodes* mycelium extracts reasonably taught and/or suggested by the cited Nagaoka references

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Applicants' arguments have been carefully considered but are not deemed to be persuasive of error in the above rejection. Applicants argue that the rejection is based, in part, on the premise that the preparation of Iizuka ('627) is the same as the preparation used in the method of claim 24, and that Applicants similarly addressed the teachings of Iizuka ('627) in the reply filed 03 January 2003 -i.e., as noted in the response filed 03 January 2003, Iizuka ('627) uses the same raw material and method of preparing an extract from Lentinus edodes as used in Sugano ('760). However, in forming the previous Office action, the Examiner had again reviewed the teachings of Iizuka ('627) as well as Sugano (760) and then further considered the arguments

presented within Applicants' 03 January 2003 response over the reference product. The Examiner determined at the time of the previous Office action that the arguments presented within Applicants' 03 January 2003 response were not persuasive over the Iizuka ('627) and thus made the USC 103 rejection over Nagaoka (US 6,090,615) and Nagaoka (US 2004/003833) in view of Iizuka (US 4,629,627) for the reasons set forth in the previous Office action.

Applicants continue to argue that the Nagaoka US '615 reference has been misinterpreted by the examiner with respect to the recitation therein: "their *Lentinus edodes* (shitake) mycelium extract is effective as an anti-tumor agent ..." including because all the all of the sections of Nagaoka ('615) relied upon by the Examiner refer to anti-tumor activity specifically in the context of *B*-glucan within such an extract, whereas the presently claimed method uses a preparation digested with cellulase. However, this is not deemed relevant to the above USC 103 rejection, including because the instant claims do not define the extract in terms of not containing *B*-glucan therein, including those containing high levels of *B*-glucan. In addition, such *B*-glucan extracts are just one example of the types of extracts made via the preparatory methods taught by Nagaoka. Applicants previously had argued that the teachings within col 1, lines 30-44, of Nagaoka ('615) that the Examiner relies upon in US '615 refers to the prior art preparation not the preparation of the Nagaoka '615 inventors. The examiner still disagrees with Applicants interpretation of this section. However - as discussed previously, outside of this passage, this reference clearly and repeatedly teaches that the US '615 *Lentinus edodes* mycelium extract preparation shows excellent and effective anti-tumor activity (see, e.g., Abstract; col 4, lines 41-45; col 8, lines 44-51; col 10, lines 24-47). Applicants again argue that Nagaoka ('615) preferably uses *B*-1,3-glucanase, as an enzyme within their preparatory steps. However, as noted

above, the US '615 reference also expressly teaches that the extract composition shows excellent antitumor effects and has high levels of bioactive immune imparting cytokinin-like substances - especially including extract preparations prepared by either of the first two methods disclosed within US '615 - which do not require, or do not necessarily require, the presence of *B*-1,3-glucanase therein); and further teaches that not only can the enzyme *B*-1-3-glucanase be used but also enzymes derived from the mycelium in preparing an extract with anti-tumor activity (again see, e.g., Abstract; col 4, lines 41-45; col 8, lines 44-51; col 10, lines 24-47). Applicants also again argue that US '330 only discloses treating liver cancer as a viral disease based upon claim 5 therein. However, US '330 also teaches that the extract can be used to treat liver cancer at paragraphs [0013] and [0016]. With respect to the teaching of US '330, as discussed in the art rejection above, this reference teaches a *Lentinus edodes* mycelium extract, prepared via the same (or essentially the same) steps as instantly claimed, is useful against liver cancer (see, e.g., paragraphs [0013] and [0016], and claim 5) - in addition, please refer to the teachings of Iizuka (US 4,629,627) - newly cited above, with respect to liver cancer reasonably reading upon a tumorous cancer. Accordingly, the cited Nagaoka references teach (or at least reasonably suggest) that their *Lentinus edodes* mycelium extract preparations have anti-tumor activity. Applicants further argue various immune cell function effects provided by the claimed extract. However, such functional effects would be intrinsic to an administered extract composition, as reasonably suggested by the cited references as a whole.

Further, Applicants have argued and discussed the cited references individually without clearly addressing the combined teachings. It must be remembered that the references are relied upon in combination and are not meant to be considered separately as in a vacuum. It is the

combination of all of the cited, relied upon references which make up the state of the art with regard to the claimed invention. Applicant's claimed invention fails to patentably distinguish over the state of the art represented by the references.

It should again be noted however that treating a tumor via administering such an extract, whereby the extract comprises the particular percentage amounts of various ingredients therein as recited in instant claim 35 is deemed to adequately distinguished the claimed method over the prior art.

Claims 26-29 and 38 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nagaoka (US 2004/0038330 - which has an effective filing date of June 9, 1994) in view of Nagaoka (JP 61103816 - JPAB and DWPI Abstracts) for the reasons set forth in the previous Office action which are restated below.

The first Nagaoka reference (US '330) teaches a *Lentinus edodes* mycelium extract, prepared via the same (or essentially the same) steps as instantly claimed (as well as via the same essential steps as JP '816 below) which is useful against viral hepatitis B, HIV, and liver cancer (see, e.g., paragraph [0013] and claim 5) and can be administered orally or by injection (see, e.g., paragraph [0029]). This reference does not teach utilizing such an extract preparation to treat bacterial infections.

The second Nagaoka reference (JP '816) beneficially teaches a *Lentinus edodes* (also known as shiitake mushroom) mycelium extract having antibacterial (antibiotic) activity (thus, useful for treating bacterial infections), which is prepared via the same (or essential the same) steps as instantly claimed (as well as via the same essential steps as US '330 above). This reference does not expressly teach oral or injectable formulations thereof.

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to further utilize the extract preparation taught by the first Nagaoka reference (US '330) as an antibacterial agent (including within an oral or injectable preparation as disclosed therein) based upon the beneficial teachings provided the second Nagaoka reference with respect to the antibacterial activity such an extract provides, especially given that each of the extract preparations are prepared by the same, or essentially the same, steps (further, the references are by the same inventor). Accordingly, one of skill in the art would reasonably discern that a *Lentinus edodes* mycelium extract such as prepared by the steps taught by each of the cited Nagaoka references would also effectively function as an antibacterial within the oral and/or injectable compositions taught by the first Nagaoka reference (US '330). The result-effective adjustment in conventional working conditions/parameters (e.g., providing such an extract within one or more conventional pharmaceutical formulations such as those instantly claimed and/or treating a particular type of bacterial infection - especially given that no demonstrated working examples have been provided within the instant disclosure with respect to treating a particular type of bacterial infection, including those instantly claimed) is deemed merely a matter of judicious selection and routine optimization which is well within the purview of the skilled artisan having the cited references as a guide. Please note that although not expressly taught, other recited claim limitations (e.g., the instantly claimed underlying functional effect - enhancing γδT cell activity, and/or that the extract comprises various naturally-occurring ingredients therein) would be intrinsic to the *Lentinus edodes* mycelium extracts reasonably taught and/or suggested by the cited Nagaoka references

Thus, the invention as a whole is *prima facie* obvious over the references, especially in the absence of evidence to the contrary.

Applicants' arguments concerning the above rejection have been carefully considered but are not deemed to be persuasive of error in the rejection. Applicants argue that Nagaoka ('816) only discloses the transdermal antibacterial activity of an extract of *Lentinus edodes* mycelium, whereas the present invention of claim 26 requires oral or injectable administration. However, one of ordinary skill in the art would clearly envision using such an antibacterial extract of *Lentinus edodes* mycelium as demonstrated by Nagaoka ('816) within other conventional, commonly-employed pharmaceutical forms. Thus, the claimed invention is deemed obvious over the cited references for the reasons fully set forth above.

Claims 24, 25, and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugano et al. (US 4,461,760) and Nagaoka (US 6,090,615).

Sugano et al. beneficially teach an anticancer/antitumor composition comprising an LEM extract prepared via the same or essentially the same steps including a step of hydrolyzing/ delignifying the mycelia via exposing the solid medium to enzymes existing within the mycelia medium suspension (such as those instantly claimed - e.g., protease, cellulase, glucosidase) which was orally administered via injection to rats (in solution form, whereby LEM powder was dissolved in 0.9% salt water - please note that such a solution would be suitable for oral administration as instantly claimed) having chemically induced tumors, whereby the LEM increased the survival rate of the rats as well as reduced their tumor growth rate (see entire

document including, e.g., col 2, line 48 - col 3, line 15, per se; col 4, line 44 - col 5, line 68; Figures 2-3, and Tables 4-5: with respect to the preparation and *in vivo* use of LEM, per se). Please note that although not expressly taught, other recited claim limitations (e.g., the instantly claimed underlying functional effect - enhancing γδT cell activity, and/or that the extract comprises approximate amount ranges of various ingredients therein) would be intrinsic to the LEM extract taught by Sugano et al.

The US '615 reference teaches a *Lentinus edodes* (also known as shiitake mushroom) mycelium (hyphae) extract which is prepared via the same (or essentially the same) steps as instantly claimed, as well as pharmaceutical, drink, oral (food) formulations thereof, and a method of treating tumors therewith (see, e.g., col 1, lines 30-44; col 2, lines 25-63; col 3, lines 6-68; and Example 1, Comparative Examples 1 and 2, Example 4, Comparative Examples 3-4). The US '615 reference also expressly teaches that the extract composition shows excellent antitumor effects (especially including extract preparations prepared by either of the first two methods disclosed within US '615 - which do not require, or do not necessarily require, the presence of *B*-1,3-glucanase therein); and further that not only can the enzyme *B*-1-3-glucanase be used but also enzymes derived from the mycelium in preparing an extract with anti-tumor activity (see, e.g., Abstract; col 4, lines 41-45; col 8, lines 44-51; col 10, lines 24-47).

It would have been obvious to one of ordinary skill in the art to treat a tumor in a subject in need thereof via administering an effective amount of a *Lentinus edodes* mycelium extract which is prepared via the instantly claimed steps based upon the beneficial teachings provided by the cited references with respect to the anti-tumor activity such an extract provides. The adjustment of particular conventional working conditions (e.g., using a particular type of rice

bran within the fungal culture medium, adding additional enzymes to the medium solution -as beneficially disclosed by US '615, and/or administering such a composition via conventional routes such as those instantly claimed) is deemed merely a matter of judicious selection and routine optimization which is well within the purview of the skilled artisan.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Applicants' arguments concerning the above rejection have been carefully considered but are not deemed to be persuasive of error in the rejection. Applicants argue that the extract of Sugano ('760) is different from the extract used in the method of the instant invention, for the same reasoning as provided in detail on pages 2-3 of Applicants' 14 September 2007 response, which have already been fully addressed by the Examiner under the USC 102(b) rejection over Sugano ('760) above (and, thus, do not need to be repeated here).

It should again be noted however that treating a tumor via administering such an extract, whereby the extract comprises the particular percentage amounts of various ingredients therein as recited in instant claim 35 is deemed to adequately distinguished the claimed method over the prior art.

Claim Objections

Claim 35 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Please also note, that the appropriate incorporation of the claim 35 limitations into each of independent claims 26 and 38 would also adequately distinguish these methods of use claims and, thus, claims 26 and 38 (and the dependent claims therefrom) would also be allowable.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Tate whose telephone number is (571) 272-0970. The examiner can normally be reached on Mon-Thur, 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terry McKelvey can be reached on (571) 272-0775. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christopher R. Tate
Primary Examiner
Art Unit 1655